WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a polynucleotide encoding a phospholipase $A_{2\gamma}$ polypeptide.

2. An isolated nucleic acid molecule according to claim 1, wherein said phospholipase $A_{2\gamma}$ polypeptide catalyzes cleavage of fatty acids from the *sn*-2-position of phospholipids.

3. An isolated nucleic acid molecule according to claim 2 wherein said polynuceotide encodes a sequence as set forth in SEQ ID NO:1 or ~~SEQ ID NO:2.~~

4. A vector comprising a nucleic acid molecule according to claim 1.

5. A cell transformed or transfected with a vector according to claim 4.

~~6. An isolated nucleic acid molecule comprising a fragment of a~~ polynucleotide encoding a phospholipase A2γ wherein said fragment specifically hybridizes with a sequence as set forth in SEQ ID NO:5 or SEQ ID NO:6.

7. An isolated nucleic acid comprising a polynucleotide having at least about 90% identity with SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, or SEQ ID NO:6.

8. An isolated nucleic acid according to claim 7 comprising SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, or SEQ ID NO:6.

~~9. An antisense sequence which specifically hybridizes to SEQ ID NO:2, or~~ SEQ ID NO:3 .

10. An isolated polypeptide comprising a phospholipase A2γ.

11. An isolated polypeptide according to claim 10 which catalyzes cleavage of fatty acids from the *sn*-2-position of phospholipids.

12. An isolated polypeptide according to claim 11 which has at least 90% identity with SEQ ID NO:1 or SEQ ID NO:2.

13. An isolated polypeptide according to claim 12 comprising SEQ ID NO:1 or SEQ ID NO:2.

14. An isolated polypeptide according to claim 12 which is a conservatively substituted variant of SEQ ID NO:1 or SEQ ID NO:2.

15. An antibody capable of binding to a phospholipase A2γ according to claim 10.

16. A method of treating inflammation in a patient, said method comprising decreasing calcium-independent phospholipase $A_2\gamma$ activity in the patient.

17. A method according to claim 16 wherein the patient suffers from Alzheimer's disease, myocardial ischemia, or myocardial infarction.

18. A method according to claim 17 comprising administering to the patient a phospholipase $A_2\gamma$ translational repressor molecule.

19. A method according to claim 17 comprising administering to the patient an antisense sequence which specifically hybridizes to SEQ ID NO:3 or SEQ ID NO:4 .

20. A method of increasing fatty acid utilization in a patient in need thereof, said method comprising increasing $iPLA_2\gamma$ activity in the patient.

21. A method according to claim 20 wherein the patient suffers from diabetes or obesity.

22. A method according to claim 21 comprising administering to the patient a substance which blocks translational repression of $iPLA_2\gamma$ expression.

23. A method according to claim 21 comprising administering to the patient an $iPLA_2\gamma$ polypeptide as set forth in SEQ ID NO:1, SEQ ID NO:2 or a conservatively substituted variant thereof or administering a polynucleotide encoding said $iPLA_2\gamma$ polypeptide.

24. A method for measuring activity of a phospholipase $A_2\gamma$ polypeptide of cells in a biological sample, said method comprising introducing into the sample a phospholipid substrate for cleavage of fatty acids by the phospholipase $A_2\gamma$, wherein the phospholipase $A_2\gamma$ cleaves fatty acid from the *sn*-2-position of the phospholipid substrate and measuring cleavage of the phospholipid substrate, wherein measuring cleavage of the phospholipid substrate comprises quantifying the release of fatty acid from the substrate.

25. An assay method for identifying substances which modulate $iPLA_2\gamma$ expression in a cell, said method comprising contacting a candidate substance with cells comprising a promoter sequence operably linked to an $iPLA_2\gamma$ repressor binding site and a reporter gene and measuring expression of the reporter gene.

26. A method according to claim 25 wherein said repressor binding site comprises SEQ ID NO:7.

27. A method according to claim 26 wherein said reporter gene encodes an enzyme capable of being detected by a colorimetric, fluorimetric or luminometric assay.

28. A method according to claim 27 wherein said reporter gene encodes a luciferase.

29. A method according to claim 26 wherein the promoter sequence is a baculovirus promoter sequence.

30. A method according to claim 26 wherein the cells are Sf9 cells.

31. A genetically engineered cell capable of identifying substances which modulate $iPLA_{2\gamma}$ expression in a cell, said cells comprising a promoter operably linked to an $iPLA_{2\gamma}$ repressor binding site and a reporter gene.

32. A genetically engineered cell according to claim 31 wherein said repressor binding site comprises SEQ ID NO:7.

33. A genetically engineered cell according to claim 32 wherein said reporter gene encodes an enzyme capable of being detected by a colorimetric, fluorimetric or luminometric assay.

34. A genetically engineered cell according to claim 33 wherein said reporter gene encodes a luciferase.

35. A genetically engineered cell according to claim 32 wherein the promoter is a baculovirus promoter.

36. A genetically engineered cell according to claim 32 wherein the cells are Sf9 cells.

37. A method for identifying a substance which modulates $iPLA_{2\gamma}$ expression, the method comprising: (1) contacting a candidate substance with a repressor binding site and detecting binding to said site, or (2) contacting a candidate substance with cells capable of expressing $iPLA_{2\gamma}$ or a fragment thereof and measuring the expression of $iPLA_{2\gamma}$ or fragment thereof by the cells, wherein a level of expression greater or less than that in absence of the substance indicates activity in modulating $iPLA_{2\gamma}$ expression.